

**Report  
to  
The Vermont Legislature  
on**



**Career & Technical Education**



**by  
The Vermont State Board  
Of Education**

**David Larsen, Chair  
Trevor Braun  
Lisa Cox  
Bonnie Johnson-Aten  
Frank McDougall**

**Diane Mueller, Vice-chair  
Deborah McDowell  
Rick Manahan  
Carol Ode  
Aly Richards**

**February 2003**



The Vermont Department of Education is committed to ensuring that all of its programs are accessible to all members of the public, and that all activities and programs are non-discriminatory in design, application and performance.

*Executive Summary of the*  
**Report to the Vermont Legislature  
On Career and Technical Education**  
by the Vermont State Board of Education  
February 2003

The 2002 Legislature asked that the Vermont State Board of Education conduct an evaluation of the pilots experimenting with new approaches to career and technical education, to articulate a vision and mission for that system, and to make recommendations on specific issues impacting the development of that system. Below is the response of the board to that request.

**Mission of Vermont's Career & Technical Education System**

Career and technical education (CTE) will be an integral part of Vermont's K-12 public education system and its high school innovation initiative. It will support students in their acquisition of the skills needed to pursue rewarding, high-skill careers by:

- ◆ Supporting career development throughout the K-12 system
- ◆ Providing career preparation through instruction based on industry standards that encompasses the academic, workplace and occupational skills needed in career areas
- ◆ Providing, in partnership with colleges and other stakeholders, post-high school education and training needed for an effective workforce and economic development system.

**Vision for a Career & Technical Education System**

- ◆ Strong regional boards will manage career development and career preparation programs in their regions.
- ◆ Technical centers will support middle schools and high schools to provide coordinated career development activities to all students.
- ◆ Technical centers will support high schools in providing students with career pathways and CTE programs.
- ◆ Technical centers will offer one- and two-year programs that provide preparation in broad career areas and that can lead to a diploma.
- ◆ Colleges will partner with technical centers to provide seamless pathways to apprenticeships, certificate programs, and degree programs.
- ◆ Technical centers will offer individuals and businesses the on-going training necessary to stay current with skills required in a competitive workplace.

**Recommendations to the 2003 Legislature**

***Question #1***

*If deemed a promising innovative strategy, what legislation is needed to authorize the building and operation of a three or four-year regional technical center which would be authorized to offer non-technical courses and grant diplomas?*

- ◆ Technical centers should offer one- and two-year programs that students can pursue to a diploma.
- ◆ Statutes should be amended and developed to allow technical centers to operate as high schools and/or issue diplomas.

***Question #2***

*Whether the general assembly should authorize a new finance system for technical education providers, including:*

- ☐ *a new revenue-raising system,*
- ☐ *a system for incurring debt,*
- ☐ *a budget approval process, and*
- ☐ *a system for capital construction funding?*

*The strategy should include an analysis of the impact of the recommended finance system and the capital construction funding system on the entire technical education system, the state budget, and other secondary schools.*

- ◆ The secondary portion of the CTE system should continue to be funded through the Education fund as the rest of Vermont's public education system.
- ◆ State tuition assistance for technical education should be set at a level so that CTE is no more expensive for school districts than other secondary enrollments.
- ◆ Technical center budgets should have input by the region and budgets should be voted on by the voters whenever possible.
- ◆ The state should cover 90% of the costs of technical center construction.

### ***Question # 3***

*How colocation of technical education with other workforce development providers should occur, including how operational costs should be shared.*

- ◆ Colocation should be handled through Memorandums of Understanding that insure that they cover their costs.
- ◆ The VSC should have staff who each work with two or more centers and who develop and administer postsecondary programs at technical centers throughout the state.
- ◆ Every technical center should have an adult services coordinator to connect the capacity of the technical center to the workforce development needs of individuals and businesses in its region. State funding should include funding based on performance.

### ***Question #4***

*How integration of technical education programs with the general high school curriculum can be accomplished, and its impact on other schools in the region.*

- ◆ Strong regional boards should manage career pathways for students.
- ◆ Technical centers should provide support to high schools to develop career pathways.
- ◆ Satellite programs should be offered in high schools that connect to pathways.

### ***Question # 5***

*How to encourage development and implementation of innovative technical education programs, including a strategy for state annual appropriations of funds, including capital construction funds, for this purpose.*

- ◆ Program Innovation Grants of \$450,000 should be an annual part of the budget. These funds should be utilized to initiate programs that respond to emerging technologies and workforce development needs in the regions.
- ◆ An equipment grant line item of \$1 million should be an annual part of the capital budget.

### ***Question #6***

*The educational and fiscal impact of regional technical centers on those schools which are located at a distance from the center and on the educational opportunities of the students in those schools.*

- ◆ Satellite CTE programs should be offered in high schools, especially those that are distant from centers.

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## **Introduction**

The 2002 Legislature requested that the State Board of Education develop mission and vision statements for career and technical education (CTE) to assist in crafting legislation to support CTE's evolution and improvement. It also asked that the Board make recommendations on specific issues around CTE that currently need resolution.

This report on CTE is the State Board's response to these legislative requests. It focuses primarily on describing the future direction for CTE and how it is connected to our secondary education reform effort. It also articulates some parameters for responses to the specific issues identified by the legislature. We hope that these can serve as a guide to the legislature as it considers CTE policy, governance, and fiscal issues and their relationship to the broader education system. To that end, this report will:

- ◆ Trace the development of CTE during the past two decades
- ◆ Identify the mission and vision for Vermont's CTE system that emerge from this development
- ◆ Summarize lessons learned from the Technical Education Pilots on how best to implement this mission
- ◆ Make recommendations on the questions asked by the 2002 legislature within the context of CTE's mission and its relationship to the broader education system.

The State Board has received a great deal of assistance and in-put from many people and groups in coming to its vision of the future of CTE and its recommendations for the legislature. We would like to acknowledge and thank the members of the following groups and organizations for their time, wisdom, and insights that have shaped this report and that have made CTE the exciting, effective system that it has become:

- Vermont Legislature
- Human Resource Investment Council (HRIC)
- Joint Fiscal Office
- Workforce Investment Boards from regions throughout the state
- Regional Advisory Boards
- Technical Education Directors Association
- Vermont Adult Technical Education Association
- Vermont Superintendents Association
- Vermont School Boards Association
- Vermont State Colleges
- Students, parents, and staff at the Technical Education Pilot Sites.

## **Part I.**

### **The Evolution of Vermont's Career and Technical Education System**

#### **A. The Industrial Economy and Vocational Education**

During the last two decades, what is currently called career and technical education (CTE) has also been called, first, vocational education and, then, technical education. In this same period, the legislature acted on a range of proposals that have brought rapid and significant change to the scope, content, and operations of the CTE system. Both of these point to a system that has been undergoing rapid and significant change. It is, therefore, necessary and appropriate at this juncture to understand why those changes happened and their implications for the future.

Historically, career and technical education has evolved from the secondary and vocational education systems of the last century. For most of the 20<sup>th</sup> century and within its industrial economy, vocational education was primarily a secondary education effort that focused on preparing a group of students to go directly into the workforce after graduation. Below management and R&D levels in business organizations, the skills needed by the majority of workers were narrowly prescribed and could be mastered by focused training incorporated into students' secondary experience or acquired in the workplace. The industrial economy supported the development of a tracking system within high schools: an academic track led students to college and the professions, a vocational track led students directly to occupations in business and the trades, and a general track evolved for students who began their careers in the unskilled workforce. The roughly 80 percent of students who emerged from this system and entered the workforce without a college degree could most often find employment that would eventually lead to a career that would support them and their families.

#### **B. The New Workplace and Technical Education**

Dramatic changes in the workplace in the last two decades of the 20<sup>th</sup> century made the industrial paradigm obsolete. An emerging global marketplace highlighted the need for workplace productivity. Quality management models for work functions replaced the industrial model that had defined the 20<sup>th</sup> century workplace. Instead of carrying out a prescribed task that could be mastered with high school or on-the-job training, workers were expected to be multi-tasked and to work as a part of a team. Concurrently, technology was becoming an increasingly important component of most work functions. Together, these developments re-defined the types and levels of skills needed in the workplace. Unskilled employment opportunities shrank and rarely served as a first step on a career ladder. As this skill gap became apparent to the education and business community in the 1980's, the debate about the effectiveness of public education and its ability to meet this challenge was spurred on by the publication in 1983 of *A Nation At Risk*. Its message was that students in the United States performed at a much lower

overall level than their counterparts in other industrialized nations. While there was considerable disagreement on how students really performed and the effectiveness of the nation's public schools, an awareness emerged that, in a global economy in which developed countries would compete through applied technologies and a workforce capable of using them, worker skills and rapid advances in technology would be the primary prerequisites of a nation's ability to compete.

Following the publication of *A Nation at Risk* in 1983, the SCANS (Secretary's Commission on Achieving Necessary Skills) Report<sup>1</sup> clarified the skills needed in the new workplace:

- Workplace competencies - allocation of resources, interpersonal skills, management of information, management of systems, application of technology
- Foundation skills- basic skills (reading, writing, mathematics, speaking and listening), thinking skills (the ability to learn, to reason, to think creatively, to make decisions, and to solve problems), and personal qualities (individual responsibility, self-esteem, self-management, and integrity).

The SCANS report made it clear that all students would need to graduate with high academic skills and sophisticated workplace competencies and those who did not would compete for an ever smaller number of low-skill jobs that paid poverty wages.

The education system responded in the 90's by setting much higher standards for all students and holding schools accountable for supporting all students to reach those standards. Vermont's approach to setting higher standards was the development and adoption of the *Vermont Framework of Standards and Learning Opportunities* in 1996 and the legislature's passage of the Equal Educational Opportunity Act of 1997 (EEOA). The framework raised the bar for academic skill attainment and included the workplace and foundation skills identified in the SCANS report. The EEOA holds schools accountable for ensuring that students acquire these skills. The initial reactions within secondary education to this challenge were to raise graduation requirements, search for ways of "eliminating the general track," and raise expectations for all students.

The impact of the SCANS report was more immediate and specific in vocational education. In the late 80's and early 90's, the narrow training focus of "vocational" education was replaced by "technical" education programming that:

- Emphasized the integration of the higher academic skills needed in the workplace
- Included the Foundation and Workplace skills identified in the SCANS report
- Introduced in "tech prep" the notion that students pursuing high-skill employment could pursue postsecondary education and training in associate degree vocational/technical education programs.

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<sup>1</sup> The Secretary's Commission of Achieving Necessary Skills, Learning a Living: A Blueprint for High Performance, 1992, U.S. Government Printing Office, Washington, D.C.

### C. High School Innovation and Career and Technical Education

During the last ten years, the level of skills needed in the workplace has continued to rise and become more specialized. The number of unskilled jobs has continued to shrink. Federal occupational employment projections state that:

- 70% of the fastest-growing jobs will require an education beyond high school
- 40% of all new jobs will require at least an associate's degree.<sup>2</sup>

The attempt to eliminate the general track and raise skills for all students, however, made only minimal progress. In Vermont, skills of secondary students have risen only marginally and two-thirds of students have not met high state standards in English/language Arts and math by the end the 10<sup>th</sup> grade. Well over 50 percent go to college but fewer than half graduate. Consequently, the same 25 percent fill the professional jobs in the workplace. Only 10 percent of graduates pursue a vocational/technical associate's degree or postsecondary training.

This gap between high school outcomes and workforce requirements has led many states, including Vermont, to pursue more vigorously a new paradigm for secondary education. The focus has continued to be on how to raise the performance of those students who are not in the college prep group - the hidden general track.

To identify a new paradigm to serve as a basis for improving high schools, the Vermont State Board of Education created the High School Task Force. Its findings, published in August 2002, documented the need for structural change in high schools.

*...many high schools have become impersonal institutions where individual dreams and talents easily are lost as students struggle to meet uniform curriculum requirements and accumulate Carnegie units. As a result, students with college aspirations focus their energies myopically on achieving competitive grades and test scores while students without clear college aspirations drift through four years of high school without an organizing purpose. During our discussions of research and current theory, the need for substantive change in Vermont secondary education became abundantly clear.*

*In this report, we have concluded that programs narrowly designed to suit only one traditional pathway cannot engage all students in developing their full potentials or help them realize their personal dreams. Narrowly defined pathways hinder the development of students who attend classes without meaningful, personal investment or engagement in creating their future. Twenty percent of Vermont high school freshmen do not graduate in four years. They drop out disenchanted and face greatly diminished prospects as members of their communities. Many students who go on to post-secondary education change their majors several times; half do not graduate from college within six years. The*

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<sup>2</sup> Source: US DOE, October 2000 and Bureau of Labor Statistics, *Occupational Employment Projections to 2008*, in NAB, *Workforce Economics*, vol. 6, Issue 1, Spring 2000.



*economic and emotional impact of lost opportunities can be devastating for individual students and their families as well as the state as a whole.<sup>3</sup>*

In order to create the pathways necessary to engage students, the task force examined improvement strategies that raised student performance. In its report, *High Schools on the Move*, 12 principles for effective high schools were identified. The 12 principles provide a new paradigm for high schools based on:

- Empowering students, as young adults, to create and pursue their own personal goals
- Providing students with a variety of education pathways in which they can pursue their goals
- Encouraging students to learn and apply skills in real-world settings.

Many of the new models emerging in this first decade of the 21<sup>st</sup> century, build on the "best practices" developed by raising the academic standards technical education in the last decade. Two aspects of technical education are reshaping its role and are becoming become a mainstream approach to re-framing students' secondary education role: career development activities and career pathways programming. Career development and career pathways are becoming a more critical element of middle and high school students education because:

- They help students identify personal goals in which they are invested and about which they are passionate
- Careers provide a context for applied learning, for integrating academic and technical skill instruction, and for team teaching
- Career-focused education provides a basis for strong business/education partnerships and for placements of students in the community and workplace.

The renewed focus on career development and the emerging interest in careers as a structuring element for creating pathways for students in high schools have brought secondary and technical education closer together and created a new paradigm for technical education. Technical education has become career and technical education by:

- Expanding its scope to focus more on the high academic, SCANS, and occupational skills needed for work in broad career areas so that students have the foundations and flexibility to change occupations as the workplace changes
- Incorporating industry standards and credentials so that secondary programs can connect to postsecondary programming that builds off the same framework
- Developing seamless pathways to postsecondary programming such as apprenticeship, certificate programs, and college degree programs as avenues to high-skill, high-wage employment.

In the 21<sup>st</sup> century, career and technical education (CTE) has finally moved from being a narrowly defined track for some secondary students to be a vital part of secondary education and of the state's workforce development system. Vermont's CTE system has become the basis for:

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<sup>3</sup> Vermont High School Task Force, High Schools on the Move: Renewing Vermont's Commitment to Quality Secondary Education, Vermont Department of Education, Montpelier, Vermont, pp. 1-2.

- supporting career exploration and decision making in middle and high schools
- assisting high schools in fostering a career context for teaching the skills of the Vermont Framework in an applied fashion that is meaningful to young adults
- creating CTE programming that builds from high school programming and that provides a pathway that incorporates the 11<sup>th</sup> and 12<sup>th</sup> grades
- connecting seamlessly to postsecondary programming such as apprenticeship, credential programs, and college degree programs, sometimes offered at the same site as the secondary programs
- providing on-going training to adults and businesses to stay current with advances in the workplace.

## **Part II.**

### **A Mission and Vision for Career and Technical Education in Vermont for the 21<sup>st</sup> Century**

#### **A. Mission:**

Given the evolution of career and technical education (CTE) in the secondary education system and its critical role in workforce development, the mission for Vermont's CTE system in the 21<sup>st</sup> century is:

**Career and technical education will be an integral part of Vermont's K-12 public education system. It will support students in their acquisition of the skills identified in the *Vermont Framework of Standards and Learning Opportunities* and those specific skills needed to pursue rewarding, high-skill careers by:**

- **Supporting career development throughout the K-12 system**
- **Providing career preparation through instruction based on industry standards that encompass the academic, workplace and occupational skills needed in career areas**
- **Providing, in partnership with colleges and other stakeholders, post-high school education and training needed for an effective workforce and economic development system.**

Career development activities and CTE programming will be integral parts of a growing number of students' secondary education experience. Career development activities in the middle and high school years will provide students with the experiences necessary to acquire the knowledge and skills identified in the Personal Development and Social Responsibility standards in the Vital Results section of the Framework. CTE programs will provide pathways for students to acquire the knowledge and skills identified throughout the Vital Results and the academic knowledge and skills in those fields of knowledge that are embedded as foundational skills for their career areas.

CTE centers will be the regional hubs for workforce education and training. Certificate, apprenticeship and degree programs will connect Vermonters to high-skill employment opportunities. Businesses and individuals will have access to education and training opportunities to stay current with or advance in a constantly changing workplace.

#### **B. Vision:**

Were this mission a reality, Vermont's career and technical education system would function in the following ways:

1. The career and technical education system would work collaboratively with VSAC and DET personnel to support **career development** (career awareness, career exploration, career decision making) by:
  - Working with elementary, middle and high school faculty and staff to help them provide experiences to all students that support career awareness and career exploration, so that students can identify and pursue careers that reflect their aptitude, abilities and aspirations
  - Assisting high schools in providing career pathways to all students that provide them the context to acquire the academic and workplace skills identified in the *Vermont Framework of Standards and Learning Opportunities*
  - Working with WIBs and business organizations to manage a region's business/education partnership to facilitate the participation of business and community groups in the classroom and in providing learning experiences in the community and workplace.
2. The career and technical education system would be providing **career preparation** by offering secondary career and technical programming that:
  - Is based on industry standards and leads to credentials that are recognized by businesses and postsecondary institutions
  - Integrates instruction of the academic, workplace, and occupational skills needed within career areas and for specific career pathways
  - Is of varying lengths and scope, from pre-tech programs and short programs that lead to specific credentials to long-term programs that lead to diplomas, so that 40-50 percent of secondary students - consisting of the full range of students and including students who are disadvantaged and students with disabilities - can make career and technical education programming a coherent component of their grades secondary experience
  - Is offered in a variety of settings including technical centers, high schools, and the workplace and in a variety of modes including lab-based programs, student apprenticeship, and distance learning
  - Is linked seamlessly to postsecondary education and training and often includes postsecondary credit, dual enrollment, or other approaches to accelerated pathways to credentials and degrees.
3. The career and technical education system would be supporting regional **workforce and economic development** by:
  - Offering life-long training opportunities needed by adults in the region for entering or advancing in the workforce
  - Responding to regional and state economic development initiatives
  - Setting up and providing customized training for businesses in the region
  - Partnering with colleges to offer postsecondary courses and programs that lead to licensure, credentials and college degrees in vocational/technical areas
  - Supporting state initiatives such as welfare-to-work and ex-offender re-entry.

## **C. Organization of Vermont's 21<sup>st</sup> Century Career and Technical Education System**

In order to ensure that all students in Vermont will be able to plan and pursue pathways to rewarding careers and to gain access to career and technical education programming when it is an appropriate part of those pathways, career development and career and technical education programming should be organized and delivered in the following manner.

### **Regional Organization**

Career development and career and technical education should be organized through the 16 state-established career and technical education regions. Each region should have a **strong regional board** - with representation from high schools, WIBs, and other businesses and state organizations in the region - that will plan and coordinate the programs and services necessary to fulfill the system's mission. The regional board should:

- Create a plan that effectively utilizes the career development resources of VSAC and DET and coordinates career development in all of the region's schools
- Align curriculum and schedules among schools to support seamless career paths for students
- Plan, recommend and oversee the operations of the regional technical center/ technical high school/s in the region.

Where a technical center school district has been created, the governance board for this district should serve as this regional board.

### **Regional Career and Technical Centers**

The career and technical education centers should support career development throughout the region and offer regional career and technical education programming by:

- Collaborating with VSAC and DET to organize and provide coherent and aligned career development activities in schools throughout the region
- Utilizing state-of-the-art technology and extensive lab facilities to offer regional career and technical education programs to the full range of secondary students, including students who are economically and/or educationally disadvantaged and students with disabilities
- Supporting or providing, with high schools, career and technical education programming in high schools that takes advantage of the strengths and resources of those schools and meets the needs of their students
- Working with WIBs and businesses to manage the business/education partnership that supports career development and programming in the region
- Providing post-high school education and skill training to meet the needs of individuals and businesses in the region.

### **Elementary and Middle Schools**

Elementary and middle schools - with the support of VSAC, DET and technical centers

-should provide students with appropriate career development activities that build career awareness and support students in exploring careers and becoming familiar with how to prepare for them.

### **High Schools**

High schools, with the support of the career and technical education center and employers in the community, should incorporate the recommendations of *High Schools on the Move*. They should assist students in the 9<sup>th</sup> and 10<sup>th</sup> grades to identify career and personal goals and to develop learning plans to pursue those goals. High schools should provide educational opportunities in their curriculum for students to acquire the foundation skills needed in any career - the academic, workplace, and technical skills identified in the *Vermont Framework of Standards and Learning Opportunities*. These learning opportunities should provide pathways for students to acquire these skills in a way that connects to and supports their learning styles and their personal/career goals. This could take a variety of forms including the use of broad career areas as a context for organizing the curriculum (e.g., career concentration/pathways, career academies), applied academics courses that demonstrate how these skills connect to life and workplace tasks, and community/work-based projects that require students to apply skills acquired in classes. High schools, with the support of the regional board and the technical center, could also offer career and technical education programs that build on their curricular strengths and support the career pathways of their students.

### **Colleges**

The Vermont State Colleges should allocate staff who would each work with two or more of the current career and technical education regions. They could work with the adult coordinators in each career and technical education center and with each regional board to develop and offer college courses and programs within the region, to offer registered apprenticeship instruction, and to provide customized training for businesses that requires a postsecondary connection. Other colleges could develop their own connections to specific regions and centers to carry out their mission and to meet regional needs. These postsecondary relationships should provide for Vermonters:

- Seamless secondary/postsecondary pathways to industry certificates and associate's degrees and beyond
- Opportunities for adults to engage in postsecondary education in their own communities
- High-quality registered apprenticeship instruction in their region
- Specialized training needed to keep or attract high-skill employers.

## **Part III.**

### **Lessons on Implementation from Vermont's Technical Education Pilots<sup>4</sup>**

#### **A. Charge of the Pilots**

The new mission for CTE has been emerging with changes in the workplace over the past two decades. The 1998 Vermont legislature, working from a study of technical education, passed Act 138 to support this new mission and the development of technical education by creating pilot sites. Based on the criteria set forth in Sec. 18 of No. 138 and Sec. 121a of No. 71 of the Acts of 1998, three pilot projects were selected for full funding and received \$150,000 per year for three years: River Valley Technical Center in Springfield; Randolph Area Vocational Center; and the Chittenden County pilot project, a collaborative effort involving Burlington Technical Center, the Lake Champlain Regional Chamber of Commerce, and the Center for Technology, Essex.

Three other technical centers were selected as “unfunded” pilots: North Country Career Center in Newport; Hannaford Career Center in Middlebury; and Southwest Vermont Career Development Center in Bennington. Unlike the funded projects, these unfunded projects were not required to address all of the criteria set forth in Acts 71 and 138. Instead, they focused their efforts in one or more specific areas. Thus, North Country Career Center and Southwest Vermont Career Development Center concentrated solely on issues of governance, while Hannaford Career Center addressed issues of governance and developed career academies in its pilot project.

The pilot project initiatives were designed to explore how to address weaknesses in the existing CTE system, strengthen career and technical education, and move toward more fully realizing the mission and vision for Vermont’s CTE system. Specifically, Act 138 of 1998 sought to a CTE system that met the following objectives:

- Promotes high academic and technical performance standards for all technical education students
- Engages all of the schools in the region in appropriate decision making
- Promotes maximum access by Vermont’s secondary school population
- Ensures a financing system that guarantees an equal opportunity for successful education and career development for all Vermonters; and
- Promotes the development of programs that foster economic development throughout the state. Section 1(b)(1)-(5)

The following two charts summarize the pilot project priorities set forth in Sec. 121a of Act 71 and Sec. 18(b)(1) of Act 138 and the success of both the funded and the unfunded pilots in meeting these objectives.

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<sup>4</sup> The complete text of *The Technical Education Pilot Project Evaluation* is Attachment A of this report.

**B. Summary of Funded Pilot Project Accomplishments** (based on criteria set forth in Sec. 121a of Act 71 of 1998 and Sec. 18(b)(1) of Act 138 of 1998).

	<b>River Valley Technical Center</b>	<b>Randolph Area Vocational Center</b>	<b>Chittenden County Pilot Project</b>
1. Developed Career Academy programs in at least two clusters.	Yes Curriculum was substantially revised to align with the Career Pathways model. Industry credentials were added to all programs. Articulation and/or dual enrollment agreements were developed with local colleges. Reading and math were integrated into each program's curriculum.	Yes Career Academies developed include Health Information Specialist; Administrative Office Management; Teacher Cadet; and CISCO Networking. Independent Career Plan Academies were also developed for students in all center programs. Career academies led to preferred standing for regional employment opportunities or to related postsecondary education opportunities.	Yes Four career academies are planned for the proposed Technical Academy, including: Health, Human, and Public Services; Business and Information Technology; Applied Science; & Applied Art. Career academies were not implemented in the two existing centers, but industry credentials were integrated into programs in the two centers.
2. Developed linkages to the local labor market.	Yes Students had increased opportunities to earn industry credentials. Under a contract with VTC, local industry's needs informed the content of secondary program curricula. Adult workforce development courses were developed and delivered in response to identified regional industry needs.	Somewhat A strong co-op program provided effective linkages with area businesses that benefited the pilot project. However, due to administrative turmoil at the center and a lack of consistent pilot coordinator staffing, the project did not establish new linkages to the local labor market.	Yes The Chamber of Commerce and the WIB participated fully in the project, working with the Burlington & Essex technical centers to plan for a new Technical Academy. Labor market analysis informed the choice of proposed programming for the new Technical Academy.
3. Developed partnerships with the Vermont State Colleges, the University of Vermont, and other post-secondary institutions as appropriate and the local workforce investment board.	Yes Developed clear connections to post-secondary education and training, including college, apprenticeship, and industry skill certificates. Articulated credit and dual credit agreements were developed.	Yes Students enrolled in postsecondary courses for credit through VTC, CCV, UVM, Norwich University, and on-line offerings. Students also enrolled in VTC non-credit on-line offerings. Project funds offset tuition costs; all participating colleges also substantially discounted tuition.	Yes Efforts focused on building a constructive relationship between the Burlington and Essex centers. The Chamber of Commerce and WIB played essential roles in facilitating this process. The WIB was actively involved in all aspects of the project. Less work was done with post-secondary institutions. Essex did expand the postsecondary offerings available to its students, allowing students to earn up to 15 college credits over two years in collaboration



			with CCV, UVM, VTC, and Champlain. College.
4. In conjunction with the Vermont State Colleges, the University of Vermont, and other post-secondary institutions as appropriate, coordinated efforts to identify and determine workforce education and training needs of the local community and outlined an action plan to meet local needs as identified.	Yes Extensive work was done in this area under a contractual relationship with VTC. VTC's Education and Training Specialist served as a consultant to regional industry, identifying customized training programs and VTC courses to offer in response to regional need. A series of programs were implemented, including courses tailored to the needs of the manufacturing industry and area resorts. Leadership and supervisory training programs were offered to a wide range of local employers.	No Due to internal administrative challenges within the center during the project, no work was done in this area.	Somewhat Four career academies and their component programs were selected for the proposed Technical Academy based on analyses of labor market and program enrollment data. A full action plan, however, was not developed.
5. Coordinated with other pilot sites.	Somewhat All of the pilot projects reported that coordination was limited due to the lack of a designated person at the Department of Education to facilitate this work.	Somewhat	Somewhat
6. In conjunction with the Vermont State Colleges, the University of Vermont, other post-secondary institutions, as appropriate, the local workforce investment board, and the regional economic development corporation, promoted the delivery of integrated secondary/post-secondary programs which met local labor market needs.	Yes Extensive work began in this area and continues. Additional information is contained in items 3 and 4 above.	No While students benefited from the opportunity to take college courses at reduced cost while enrolled at the center, a truly integrated delivery system was not developed.	In process Plans for the proposed technical academy include this integrated delivery system.
7. Restructured technical center governance while ensuring that the roles set forth in Section 1541 and 1542 of Title 16 were carried out.	In process The Howard Dean Education Center Board of Directors was formed. A Memorandum of Understanding delegates responsibility for the center's operations to the new board, while the Springfield School District	In process The center formed its own governing board that is actively involved in decision-making for the center. The new board still reports to and is accountable to the high school board, but it allows for participation by the	In process The Regional Advisory Board dissolved, and the WIB assumed advisory governance responsibilities. A governance proposal was developed calling for the creation of both a Technical Academy and a Regional

7. (continued) Restructured technical center governance.	continues to assume fiduciary and legal responsibility for the center. The MOU extends through June 2004, by which time a decision will be made as to whether to continue the current arrangement or create a Regional Technical School District.	center's other sending schools. Next steps call for the board to determine whether to create a Regional Technical School District.	Technical School District. The project will continue to work with the legislature and the State Board of Education toward full implementation of its governance plan.
8. Allowed and encouraged access to technical education programs.	Yes Enrollment at the center steadily increased over the course of the project, starting at 254 students and ending at 329 students. Before the project, 75% of the center's students came from Springfield High School; 25% came from the other sending schools. Students from the four non-attached sending schools now account for 39% of the center's students, while Springfield High School accounts for 61%. The number of students from Springfield increased from 190 to 200; the number from other schools increased from 64 to 129. The center also cultivated improved relationships with its sending schools, leading to more informed decision-making by students and better student placements.	Yes The project reported an increase in college-bound students enrolled in the center due to project initiatives. Career Academy offerings and the opportunity to earn college credit at a reduced cost while enrolled at the center attracted students and parents.	In process Plans for the Technical Academy call for an increase in access to technical education.

### C. Summary of Unfunded Pilot Project Accomplishments

	<b>North Country Career Center</b>	<b>Hannaford Career Center</b>	<b>Southwest Vermont Career Development Center</b>
1. Developed Career Academy programs in at least two clusters.	Not applicable	Yes Career academies were developed in four cluster areas: Arts; Agriculture; Business; and Technology.	Not applicable

2. Developed linkages to the local labor market.	Not applicable	Yes Local businesses participated in the career academy program, teaching workshops, serving as mentors, evaluating capstone projects, and providing related employment opportunities for students.	Not applicable
3. Developed partnerships with the Vermont State Colleges, the University of Vermont, and other post-secondary institutions as appropriate and the local workforce investment board.	Not applicable	Not applicable	Not applicable
4. In conjunction with the Vermont State Colleges, the University of Vermont, and other post-secondary institutions as appropriate, coordinated efforts to identify and determine workforce education and training needs of the local community and outlined an action plan to meet local needs as identified.	Not applicable	Not applicable	Not applicable
5. Coordinated with other pilot sites.	Somewhat All of the pilot projects reported that coordination was limited due to the lack of a designated person at the Department of Education to facilitate this work.	Somewhat	Somewhat
6. In conjunction with the Vermont State Colleges, the University of Vermont, other post-secondary institutions, as appropriate, the local workforce investment board, and the regional economic development corporation, promoted the delivery of	Not applicable	Not applicable	Not applicable

integrated secondary/post-secondary programs which met local labor market needs.			
7. Restructured technical center governance while ensuring that the roles set forth in Section 1541 and 1542 of Title 16 were carried out.	<p>In process</p> <p>The North Country Career Center Board was formed. The new board continues to report to and is accountable to the high school board, but it allows for participation in the decision-making process by Lake Region Union High School and members of the business community. The decision as to whether to create a Regional Technical School District has been tabled until plans for a new technical center facility have been completed.</p>	<p>In process</p> <p>The Hannaford Career Center Board was formed. The new board still reports to and is accountable to the Middlebury High School Board, but it allows for participation by the center's other sending schools. In 2002, the new board interviewed candidates for the center's director position, a task that formerly would have fallen to the high school board and the supervisory union. The new board continues to explore the creation of a Regional Technical School District.</p>	<p>In process</p> <p>In October 2002 the State Board of Education approved the Career Development Center's proposal to form a Regional Technical School District. The plan of governance for the Regional Technical School District will be subject to a regional vote on Town Meeting Day 2003.</p>
8. Allowed and encouraged access to technical education programs.	Not applicable	<p>Yes</p> <p>Hannaford reports a broader range of students entering the Career Center. The career academies attracted students who had not historically chosen technical education.</p>	Not applicable

## **D. Lessons from the Pilots**

The pilot projects yielded the following lessons on accomplishing the objectives for the CTE system sought by Act 138.

### **1. Governance**

**Objective - Engages all of the schools in the region in appropriate decision making.**

Before the pilot project initiative was undertaken, technical centers were hindered by the fact that, because a school board operated and owned the technical center, all of the sending schools in a technical center's service region generally were not engaged in appropriate decision-making. This led to the disenfranchisement of non-attached sending high schools. It also meant that decisions were made by the host school board that failed to consider the best interests of the technical center and all of the students it served.

The pilot projects made strides in addressing these concerns. All of the projects reported that their efforts to restructure governance led to participation by all of their sending schools in the decision making process. That involvement, in turn, gave sending school representatives a comprehensive understanding of how the technical center serves students from their communities, information they shared with their local school boards. Pilots report that, as a result of changes in governance, governing board members have become true advocates for technical education in general and for the specific work of their regional technical center.

The pilots also reported that restructured governance led to increased participation by regional businesses in decision making, benefiting the centers, their students, and the participating businesses.

Since all of the centers are still in the process of implementing changes in governance, it is too soon to know the full impact that restructured governance systems will have on technical education. Pilot projects, however, firmly believe that further positive results will continue to emerge as their work in this area progresses.

### **2. Career Academies and Curricular Changes**

**Objective - Promotes high academic and technical performance standards for all technical education students.**

While each of the pilot projects structured its work in this area in different ways, all of them focused significant resources on faculty professional development designed to support curricular change. As a result of these efforts, all of the pilots reported the following results:

- Integration of higher level academic and technical skills in technical education programs and increased alignment of technical center programs with the *Vermont Framework of Standards and Learning Opportunities*.

- Integration of academics, especially reading, writing, and math, into all technical center programs.
- Integration of industry credentials and skill standards into every technical center program, leading to large numbers of students receiving credentials.
- Development of clear connections between technical education and postsecondary education and training, including college, apprenticeship, and industry skill certificates.

Additionally, some of the pilot projects also achieved the following results:

- Development of remedial support to better prepare all students for the higher level academics integrated into technical center programs and required at the postsecondary level.
- Expanded opportunities for students to earn college credit while enrolled at the technical center.
- New opportunities for students to enter apprenticeship programs with advanced standing upon completion of technical center programs.
- Development of articulation agreements and dual enrollment agreements, affording students advanced standing in postsecondary programs upon completion of a technical education program.
- Off-site delivery of programs in sending high schools to provide greater access to technical education to all students in the region.

All of the pilot projects reported that their career academy initiatives highlighted the need and potential for increasing the length of technical education programming to two full years, if not longer.

### 3. Partnerships and Linkages

**Objective: Promotes maximum access by Vermont's secondary school population and connections to postsecondary programming.**

Pilot project initiatives in this area led to:

- New and strengthened relationships with postsecondary institutions, including opportunities for students to earn college credit while enrolled in technical center secondary education programs.
- Articulation and dual enrollment agreements affording students advanced standing in postsecondary programs.
- New and expanded relationships with regional business and industry, resulting in the business community becoming more actively engaged in the delivery of technical education.

In addition, one pilot project specifically designed initiatives to strengthen its relationship with all of its sending high schools, leading to increased student enrollment, especially from non-attached sending high schools.

The completion of the new Howard Dean Education Center in Springfield allowed for the piloting of co-location and demonstrated the benefits of having postsecondary institutions and the technical center in one site.

#### **4. Workforce Development**

**Objective: Promotes the development of programs that foster economic development throughout the state.**

Of all of the pilot projects, River Valley Technical Center had the greatest success in this area. The Center's collaborative relationship with Vermont Technical College yielded great accomplishments, including:

- Informing the content of secondary program curriculum based on local industry needs.
- Aligning the work done by secondary faculty at the center with VTC courses and academic requirements.
- Providing an opportunity for technical center students to enter registered apprenticeship programs with advanced standing.
- Designing adult workforce development programming in direct response to regional industry needs. Programming has included both specific skill training and training leading to industry certifications as well as leadership training and supervisory training needed by regional businesses.

River Valley's pilot work in this area demonstrates the capacity that technical centers have to foster workforce and economic development in each region in the state and to provide adults with the opportunities to gain new skills and industry credentials.

### **E. Findings of the Pilot Project Evaluation Report**

The pilot project evaluation report prepared by the Vermont Department of Education in the Fall of 2002 included the following findings which inform decision making about the future of Vermont's CTE system:

#### **1. General Findings:**

- The pilot projects brought people together to talk about technical education in new ways. General awareness of technical education is reported to have increased in each of the communities served by the pilot projects.
- A regional, flexible approach to technical education is recommended. What works well for one center in one region of the state may not be fully replicable in another region or another center. Each project was structured differently and worked differently, but all had positive outcomes to report. Pilot projects agreed that the Department of Education should set guidelines or parameters that ensure that key outcomes are achieved and then let centers develop individualized models to achieve those outcomes and to meet local and regional needs.

- Pilot projects see themselves as laboratories, creating innovative models for teaching students and addressing workforce and economic development needs. Models developed by one pilot project can be shared statewide, allowing other regions to fully adopt a given model or to tailor it to meet local needs.
- Technical education has the potential to emerge as a strong, central economic development force in Vermont. Technical centers are well positioned to meet a wide range of workforce and economic development needs, serving people in the communities in which they live and offering the skills training that local businesses demand. The River Valley Technical Center's partnership with VTC is a model that works well and is worth replicating and expanding.
- The three fully-funded pilot projects and the Hannaford Career Center's pilot project all show the potential for expanding the length of technical education to two full years or to three or four years. The pilot projects' initiatives have laid the foundation for the expansion of technical education, and students and businesses have responded with enthusiasm to the possibility of extending the length of technical education programs.
- Change takes time. Three of the pilot projects stated that re-designing curriculum, implementing career academies, and making other systemic changes called for by the pilot project initiative required more than three years of funding. Two of the pilot projects suggested that the same financial resources could have been spread over five years to better maximize accomplishments. Another project suggested that funding should increase over the course of the initiative, starting with a small planning grant the first year to allow for strategic planning, expanding to a professional development and team building grant for the second and third years of the project to allow teachers and administrators to gain the knowledge and skills necessary to make true change, and then providing full implementation funding for three years.
- The fully funded pilot projects all agreed that the Department of Education should review its data collection practices and determine new data collection requirements so that technical centers track student outcomes more fully. Pilot projects also suggested that all technical centers use the same instruments to measure students' entry and exit level skills. They further recommended that an instrument also be used to assess student proficiency. As one director stated, "We need to be able to assess and show what students can actually do."
- Several of the pilot projects agreed that it would have been helpful to have one person at the Department of Education assigned to work with the projects for the entire three-year pilot period. That person could have provided assistance in helping centers plan for and implement change, researching and implementing curriculum and program models, coordinating efforts among all of the pilot sites, and ensuring the collection of data to document the pilots' results.



## **2. Fiscal Findings**

- Several of the pilot projects noted that technical education costs more than traditional high school education. They stated that that reality needs to be addressed and that the education/technical education funding system(s) need to be re-structured to eliminate the cost differences.
- All of the projects raised the concern that current funding sources for technical education do not allow for new program development. They recommend that funding be earmarked in the state appropriation for new program development and that such funds be awarded based on demonstrated need in a region, informed by labor market, earning potential, projected career opportunity, and other appropriate analyses.
- All of the pilots raised the concern that funds need to be made available specifically for equipment needs. In order to be a driving force for workforce and economic development, it is critical that technical centers have the equipment and technology to prepare students fully to meet business and industry's needs.

## Part IV.

### **Structures to Support Career and Technical Education Recommendations in Response to the Questions from the Legislature**

The 2002 Legislature asked that the State Board of Education evaluate the Tech Ed pilots to determine whether changes in statute were needed to support CTE toward fulfilling its mission. In so doing, it requested, in Act 149§62(b), that the board address specifically the following issues in its review of current statutes.

#### ***Question #1***

***If deemed a promising innovative strategy, what legislation is needed to authorize the building and operation of a three or four-year regional technical center which would be authorized to offer non-technical courses and grant diplomas?***

#### **Background**

For the past thirty years, Vermont has operated with a paradigm for vocational programming that provided for half-day programming for two years or full-day programming for one year. As described in Part I of this report, this paradigm reflected the needs of an industrial economy that required a narrow set of specific skills to be successful in most jobs. As the skills needed to succeed in the workplace have expanded over the last twenty years and now include high academic skills and extensive industry skills, programming with greater depth and breadth is being developed. Several technical centers are currently engaged in developing career and technical education (CTE) programs that will run up to two full years.

In Part I it was also noted that, on the national level, experimentation with expanding the scope of career and technical education programming has shown that the performance of students, especially those who have an applied learning style, improves significantly when students have been able to acquire and apply academic skills in the context of careers. New approaches to curriculum design and organization, such as career academies and career concentrations, utilize careers as a framework for organizing all of students' secondary educational experiences. In Vermont, high schools have begun to explore such career pathways for students and how they can connect to career and technical education programs.

Vermont's plan for high school renewal, *High Schools on the Move*, calls for multiple pathways for secondary students that provide for students to pursue their goals and to apply their learning in a real-world context. Among the pathways are those that provide integrated and relevant instruction framed within the context of careers. The technical education pilots and the experimentation in high schools have shown that this can happen in a variety of ways:

- Working with their regional technical center, high schools can offer certain career pathways that culminate with career and technical education programming right on their campuses
- High schools can offer career pathways that are supplemented with career and technical education programs at the regional center
- High schools can enroll students in career pathways in their 9<sup>th</sup> and 10<sup>th</sup> grades and then send students to complete their high school education and receive a diploma in a career and technical education program at a technical center
- A regional technical high school can offer career pathways and career and technical education programs with completely integrated curricula as a way of providing students with their entire secondary education.

In all these approaches, careers provide for contextual learning throughout students' secondary experience and define the pathways that integrate the major part of a students' course work in the 11<sup>th</sup> and 12<sup>th</sup> grades. In the last two of these four approaches, CTE programs would be students' pathways for their last two years of high school and a two-year regional technical center or a four-year regional technical high school could issue diplomas to their graduates. In either case, the center would be operating as a CTE high school.

The question posed by the legislature asks whether Vermont should build and operate a three- or four-year CTE high school. While the question arose from the Lake Champlain region's request for a facility to operate such a high school, it should be examined and answered more broadly. What the Lake Champlain region proposes to do in a new facility can also be accomplished using existing high school and technical center facilities. The broader question is whether Vermont wants to allow and support CTE centers to offer two-year programs or four-year programs encompassing career pathways that lead to diplomas for students.

### **State Board Recommendation**

- ✓ ***A two- or four-year technical center that offers diplomas is a promising strategy that Vermont should pursue. Statutes should be enacted or amended to clarify how technical centers can operate as high schools and offer diplomas.***

In a two-year model, a CTE center that offers diplomas would depend on high schools to provide education experiences in the 9<sup>th</sup> and 10<sup>th</sup> grades that address a portion of the *Vermont Framework* and then align its curriculum to address the remainder. While CTE centers will offer programs for the better part of two years with or without the ability to issue diplomas, the value of connecting diplomas to such programs is the ability of the center to create more coherent pathways for students compared to pathways in which students have to switch back and forth between the center and high school to piece together an education that allows them to graduate.

The value of the four-year model is that it extends this ability to integrate students' education to their entire high school experience. By framing all of students' education in career pathways culminating in enrollment in CTE programming, students have a consistent, understood, and valued context for their entire secondary education. Additionally, students seeking an applied learning opportunity can attend one school for four years. As a result, the time on task is increased significantly because transportation to and from sending schools is no longer necessary and conflicts in schools' schedules and activities are eliminated. Instead of running four-hour programs, a CTE center can offer six or seven hour programs.

In order to issue a diploma, CTE centers would have to meet all requirements pertaining to high schools. They would have to provide students with the opportunities to acquire the knowledge and skills identified in the *Vermont Framework of Standards and Learning Opportunities* and establish graduation requirements to insure that students have acquired the Framework skills and any other skills valued by the region. Current statutes pertaining to high schools would need to be reviewed and amended to ensure that they refer to and could accommodate CTE centers issuing diplomas. Furthermore, specific changes in statute would need to:

- Define a CTE center that issues a diploma,
- Identify the parameters for its governance and operations and
- Clarify how the provisions for center construction apply to a CTE centers issuing diplomas.

**Create a definition for a CTE center issuing a diploma.**

The definition of such a CTE center would include the following: it is a regional technical center that enrolls students for two or more years; it offers programming that connects to state-approved career and technical education programs; it provides students with the opportunity to acquire the skills identified in the *Vermont Framework of Standards and Learning Opportunities*; and it can issue diplomas when students have met graduation requirements.

**Define in a statute the operating and governance parameters specific to CTE centers issuing diplomas.**

Existing statutes describe different ways to govern, operate and fund technical centers and high schools. Additional language will need to clarify how these would apply to a CTE center issuing diplomas. Issues addressed would include:

- The governing board of a CTE center would need authority to operate the center as a high school and issue diplomas.
- Student entitlement and enrollment options would need to be established. Provision would need to be made or authority would need to be given to the State Board of Education to adopt rules to allow students to choose whether to pursue a diploma in the CTE high school or to apply the credits earned to their diploma at their sending school. Extracurricular opportunities would need to be clarified for students pursuing a diploma at the CTE center, e.g., would the CTE center be required to offer their own set of extracurricular activities or would students be allowed to participate in those offered to students at their home high schools?

- State funding for CTE centers issuing diplomas would need to be clarified since high schools and technical centers have different funding mechanisms.

**Clarify how statutes pertaining to school construction apply to CTE centers issuing diplomas.**

The 2002 Legislature made it clear that it wanted the CTE level of funding provided in statute to apply only to the CTE programs of a high school. In carrying out this charge, the Department of Education has defined the CTE portion of a construction project to include those spaces necessary to provide instruction in state-approved CTE programs. Spaces that are teaching to standards or purposes not covered by those programs are being considered to constitute high school space and to be eligible for the 30% state funding for high schools. If this is an approach that seems reasonable and appropriate for future applications, it should be articulated in statute.

**Question #2**

***Whether the general assembly should authorize a new finance system for technical education providers, including***

- *a new revenue-raising system,*
- *a system for incurring debt,*
- *a budget approval process,*
- *and a system for capital construction funding.*

***The strategy should include an analysis of the impact of the recommended finance system and the capital construction funding system on the entire technical education system, the state budget, and other secondary schools.***

- ***A new finance system for technical education:***

**Background**

While the pilots did not experiment with new funding systems for CTE, they did generate new approaches to programs and governance that tested the current funding system. Since its creation by the 1998 legislature, the funding system for technical education has generally worked well.

When the funding system was established, it sought to provide predictability of costs for technical education for school districts and to provide a simple mechanism for funds to follow students to the technical center in which they enrolled. The principal elements of the finance system include:

- A technical center must be its own budget center
- A technical center receives from school districts a General Student Support Grant (GSSG) for each student (FTE) in the center's six-semester average enrollment.
- A technical center receives tuition assistance from the state in the amount of 40 percent of the GSSG for each FTE student.
- A technical center receives salary assistance for specific staff positions critical to the functioning of the center.

- A technical center assesses school districts their portion of the uncovered costs based on the FTE enrollment.

The assessment of costs to school districts and the payment of assistance to technical centers based on the six-semester average enrollment have provided predictability of costs and have allowed funds to follow students.

The test for a finance system is whether it continues to work as changes occur in the system. Since it was adopted, the finance system accommodated the adoption of an entitlement of students to programs throughout the state, new types of programming spurred by the pilots - including distance learning programs - and new governance structures. That those who administer it continue to address how to fund the system with that many significant changes testifies to its basic soundness. The complaints and concerns that have been expressed about the finance system since its inception are identified and addressed in the following recommendations.

### **State Board Recommendations**

- ✓ **Set state technical education tuition assistance at a level where, on average, technical education enrollment is not more expensive for a school district.**

State technical education tuition assistance was established to lower the costs of technical education for school districts. Part of the rationale for this is to diminish the costs of technical education to school districts so that it is not appreciatively more expensive than high school enrollments and hence to lower the disincentive of school districts to send their students to technical education. While tuition assistance does this, the average costs to school districts for technical education students is still higher than the average costs for high school students. In FY 2002:

- Average announced tuition for high school students was \$7,347
- Average announced tuition (the GSSG plus the announced tuition for technical education FTE students) was \$8,653 or \$1,306 higher.

To eliminate this gap in FY 2002, tuition assistance would have needed to be set at 64 percent of the GSSG. For the future, tuition assistance could be set at 60 percent of a GSSG. While this increases the amount the state must raise for the education fund, it is off-set by reducing costs on the local level. The rationale for such a switch is to set the state support of CTE at a level that leaves a local share at a level similar to that for high school students. When the legislature makes changes to Act 60, tuition assistance for CTE programming should be set to eliminate whatever gap exists.

- ✓ **The state should pay directly from the Education fund the GSSG for students enrolled in CTE programs but not enrolled in high schools.**

When the financial system was created, it was designed to move the GSSG from the school district to the technical center for every FTE student. In almost all cases, this is what happens. However, when students who are enrolled in technical education are not enrolled in a public high school - e.g. students attending a private school, home

schoolers, adults without diplomas - they are not part of the count that determines the GSSG to school districts. As a result, a GSSG is deducted from the school district that it never received. For such students, the Department of Education should make the payment of the GSSG directly from the Education Fund without deducting it from school districts.

✓ **The CTE funding system should be a part of a uniform reporting and finance system.**

The complaint most often voiced about the CTE funding system is that it is based on its own system of reporting and funding enrollments. Funding for public education through the GSSG is based on an ADM (Average Daily Membership), which is an enrollment counted once a year and which is a school's average enrollment for the two prior years. Funding for CTE is based on an FTE enrollment, which is an enrollment counted twice a year (because of significant changes in enrollment from semester to semester) and is the average over six semesters. The FTE is established on minutes of enrollment and reflects a shorter school day to accommodate students' travel to and from programs for students from sending schools. In these separate ways of counting, reporting, and funding student enrollments, there are unavoidably mismatches, e.g. a student will be a full-time student in technical education and still be taking classes in the high school. There is, also, the extra time schools need to report enrollments for multiple funding systems. A long-term goal should be the creation of a uniform, comprehensive education reporting system integrated with a comprehensive funding system.

□ *a new revenue-raising system*

**Background**

Whenever funding for technical education is discussed, someone will predictably suggest that businesses should help fund the system since they are clearly beneficiaries. Just as predictably, businesses will reply that they already support education through the taxes they pay directly to the education and general fund, through the taxes paid by their employees, and through the economic benefit they provide to the region.

The Human Resource Investment Council (HRIC) is very much opposed to special taxes on business. It, too, believes that business already makes its fair contribution to supporting the education infrastructure through existing tax structures. Business has been much more than willing to supplement this infrastructure through working in partnerships with CTE centers and schools by donating equipment, providing work-based learning opportunities for students, and serving on program advisory committees. These roles are essential and should be recognized and rewarded.

**State Board Recommendation**

✓ **The secondary portion of the CTE system should continue to be funded through the Education Fund as is the rest of Vermont's public education system.**

The secondary portion of the career and technical education system is clearly an integral part of Vermont's public education system and should be funded from the Education Fund along with the rest of that system. The portion of a career and technical education system that serves students and businesses beyond the public education system should not be supported through the Education Fund. That funding will be identified and discussed in more depth in the reply to Question #3.

□ *A system for incurring debt*

**Background**

Statute already provides a mechanism for technical centers to incur debt. The board that governs the technical center - be it the host school board or the regional technical center school district board - has the authority to incur debt with the approval of voters in that board's district. No further provisions are thought to be necessary.

□ **A budget approval process**

**Background**

Because of the pilots and the option for a different governance structure that grew out of them, budgets currently can be approved under one of two possible governance structures for technical centers. When the high school board governs the CTE center, the center's budget is included in that board's budget and approved by the voters of that region. When a regional CTE school district has been formed for the governance of a center, statute allows for the budget to be approved by the voters of the region or by the school boards of the region. Concerns have been expressed about both approval processes.

**State Board Recommendations**

- ✓ **When a technical center is governed by the high school board, CTE budgets should have the approval of Regional Advisory Boards before they go to the voters for approval.**

One circumstance that supported the creation of a new governance structure was that, when high school boards governed technical centers, sending schools had no voice in the adoption of budgets that would affect them. Where high school boards continue to govern technical centers, adoption by the voters of that district is necessary. However, a stipulation should be added that, before a budget goes to the voters, it must have the approval of the regional advisory board. This board has representation from the sending school districts.

A stipulation should also be made in statute that allows the technical center's budget to be identified and voted on separately.



✓ **CTE budgets should be approved by voters when practical.**

When the legislature enacted the statutory requirements for the creation of regional CTE school districts, it allowed regions to adopt budgets either through voter approval or through the approval of school boards. Some believe that all budgets should require voter approval. However, some regions include such a number of school districts and high schools that annual voter approval becomes very unwieldy and very expensive.

The state board recommends that statute should be amended to make voter approval of budgets a requirement unless the board waived this requirement because the region, in its governance proposal, made a strong case why an annual vote on the budget would be either too difficult or too expensive to carry out. When a region submits a governance proposal, the state board will scrutinize it to insure that there is sufficient voter involvement in the budget development and approval process.

□ ***A System for Capital Construction Funding***

**Background**

While the funding system for the CTE system has worked fairly well, the funding system for CTE construction projects has been more problematical. Up until this past year, the state funded 100 percent of construction costs for CTE center projects because these were projects for a whole region and this level of funding would keep CTE affordable. However, along with that level of funding was the stipulation that only one project would be funded every three years. Since all centers were approaching thirty years in age, many more needed minor or major constructions than could be accommodated by this schedule. The FY 2002 legislature changed the statutory basis for funding CTE construction projects. Funding was reduced from the 100 percent level and set temporarily at 50 percent state funding. CTE construction projects were combined with other school construction projects for purposes of applying for state funding to cover the state share. While the legislature requested more information and more discussion before finalizing a state level of funding, it clearly indicated that it wanted a regional share to lower the demand for capital funding and to require a regional commitment of support to ensure that projects were of a size and scope that the region felt it could afford.

While it is impossible to predict accurately the costs of future projects, rough estimates can be developed from the technical center construction study carried out by the Department of Education and submitted to the 2000 Vermont legislature. That study collected regions' perceptions of their future facility needs. Assuming a 50 percent level of state participation, the chart below reports rough costs of the projects that were described and identifies the initial state investment, the amount to be borrowed, and the annual cost of retiring a 20- year bond (at 5 percent).

Center & Project	Total Cost	State Cost	Local Cost-Bond	1 <sup>st</sup> Year Cost of Bond*
Newport - new center	\$11.2 million	\$11.2 million		
Lake Champlain - new center	\$42 million	\$42 million		
Brattleboro - rehab & addition	\$9.4 million	\$9.4 million		
Randolph - rehab & addition	\$4 million	\$2 million	\$2 million	\$200,000
Bradford - rehab	\$2 million	\$1 million	\$1 million	\$100,000
Hartford - rehab & addition	\$ 4 million	\$2 million	\$2 million	\$200,000
Middlebury - rehab & ag academy	\$4.8 million	\$2.4 million	\$2.4 million	\$240,000
Lamoille - rehab & addition	\$3 million	\$1.5 million	\$1.5 million	\$150,000
Rutland - rehab & addition	\$3 million	\$1.5 million	\$1.5 million	\$150,000
Barre - rehab	\$2 million	\$1 million	\$1 million	\$ 100,000

\* The annual cost of bond retirement decreases approximately 2.5% per year

If the annual cost of bond retirement on these projects were covered through increases in tuition, that increase would be between \$500 - \$1200 per FTE. If anything, these estimates are probably low rather than high. It quickly becomes clear that covering only 50 percent of construction costs raises tuition too dramatically.

### **State Board Recommendations**

#### **✓ The state share of CTE center construction costs should be 90 percent of approved costs.**

Last year, the State Board recommended that the state share for CTE construction be set between 75 and 90 percent. The legislature was reluctant to set a level that high because of uncertainty over the cost of projects. While current data may not be completely accurate, it is clear that, once the projects already approved for 100 percent funding are completed, there are no plans for projects of such magnitude. Given the significantly reduced scope of future construction projects, there is an increased likelihood that a 90 percent level can be funded within the state ceiling for bonding. A level of 90 percent is recommended for two reasons:

- Passing on more of the costs of construction to school districts would result in too high tuition increases
- The regions' share is still significant enough to dissuade them from planning projects of larger scope than is absolutely necessary, which will effect cost containment.

If it seems that the state's bond limit will not accommodate 90 percent of costs, another option that would achieve the same end would be to cover 50 percent of costs through the capital fund and then assist annually with bond retirement to cover the other 40 percent of costs. This would move part of the expenditure from the capital fund to the Education or General Fund. If the state participated annually in the retirement of the bond, its costs would be driven by the number of projects and the percentage of state participation.

✓ **CTE centers should establish construction reserve accounts.**

A final option for consideration on how to help make CTE construction affordable for regions would be to encourage CTE centers to establish reserve accounts for future construction and/or major equipment purchases. In the private sector, plant maintenance and improvement is part of the annual fiscal plan and is not ignored until it becomes necessary. CTE centers can establish such reserve accounts as provided for in statute.

**Question #3**

***How colocation of technical education with other workforce development service providers should occur, including how operational costs and capital construction costs should be shared.***

**Background**

Since its inception, the CTE system has included workforce development as one of its primary purposes. Consequently, for the last fifteen years, adult education and training have been co-located with secondary programs at CTE centers. State statute has highlighted the need and made it a requirement to utilize the capacity of these centers for lifelong workforce education and training for adults in the region. As either a second-chance system for adults without the skills to pursue careers or as a resource to acquire the skills necessary to stay current with new technologies, adult technical education has played an essential function for Vermonters and their communities. As technology and the workplace change, this regional capacity for continued workforce education and training has only become more and more important.

The mission for CTE identifies, and the pilots have demonstrated, that this role is expanding in scope. CTE centers' role in a region's education and workforce development system is greatly enhanced when they also serve as regions' sites for postsecondary programming and regional economic and workforce development services. The vision section of this report stresses how education and training beyond high school is essential for students' ability to prepare for high-skill employment. The pilots have also demonstrated how co-location of postsecondary and other workforce development partners is easily accomplished.

**State Board Recommendations**

✓ **Support for adult technical education should be continued and expanded.**

A technical center's ability to align its capacity with workforce education and training is based on the staffing of this function within the offices of the adult CTE coordinator. Because of the rural nature of regions, a set of programs cannot be automatically offered but must be identified and established in relation to existing need. The capacity of centers to meet those needs goes unutilized if someone does not

identify and develop programming that reflects the needs of individuals and business within regions. This adult CTE office has over the years received state support for two reasons:

- Adult coordinators are the key link for any co-location of other than secondary programs in the center because they are the individuals who must oversee and administer after-school programming and functions
- Adult CTE programming is aimed at low- to middle-income Vermonters seeking to obtain or expand job skills and who cannot afford high fees.

While the need for continuing workforce education and training for Vermont businesses and adults has increased dramatically over the past decade, state support for adult technical education has declined. As a result, staffing of adult technical education offices has declined, the number of people served has not increased, and the cost of services has increased.

Given Vermont's need to attract and support high-skill, high-wage employers, increasing the capacity for continuing workforce education and training is essential. At some point, support for adult technical education should be restored and increased. While state funds for a adult technical education have been eliminated this year to meet budget reduction targets, resources for adult technical education should be restored and increased significantly during the coming decade as the state's economy improves.

- ✓ **Other co-locators should be a part of a CTE center when they are vital components of a region's economic and workforce development strategies. However, long-term agreements must ensure that their presence does not raise the cost of secondary programming but actually reduces costs through multiple uses of the CTE facility.**

It has become the practice in planning for CTE construction to evaluate the possibility of inclusion of space for colocation partners. Pilot sites have already identified two ways that this can come about.

- When these partners are state organizations, their space is presented to the legislature as part of the CTE facility and with the same conditions for state participation in costs as the secondary space. The space is owned by the governance board of the CTE center and leased to the co-locators through a memorandum of understanding that ensures that co-locators cover their costs for use of the facility.
- When the co-locator is a state organization, e.g., the VSC, it can approach the legislature to build, own and operate its own space on the same campus with the CTE center through its normal protocols for space construction and acquisition. Memorandums then identify how it would participate in shared costs. When the co-locator is not a state organization, the expectation is that it pays for its own space and a memorandum identifies how operating costs will be covered.

- ✓ **VSC staff should work with CTE centers to use the capacity of centers for postsecondary programming.**

For the past decade, the Department of Education and the Vermont State Colleges have looked for ways to better utilize the capacity of CTE centers for postsecondary education and training. For the past three years an approach has been piloted and promises success. The pilot has involved the presence of VSC employees on the staff and on the campuses of four CTE centers. This presence has made the desired partnering much easier and has solved many of the turf issues that made the use of CTE centers by the VSC problematic. This pilot should move to the next stage of having state-wide applicability. The Vermont State Colleges and the HRIC are jointly supporting the proposal that VSC employees be assigned to work with regions that include two or more technical centers and that represent a coherent economic region of the state. They could be stationed in one of the centers and would work to launch postsecondary programs that are an extension of the secondary programs in the centers and that are needed in the economic region.

#### ***Question #4***

***How integration of technical education programs with the general high school curriculum can be accomplished, and its impact on other schools in the service region.***

#### **Background**

Part I of this report on the evolution of CTE recounted how career and technical education has come to focus on programming that provides academic and foundation skills in broad career areas and that leads to high-skill training to prepare students for specific occupations. The vision and mission section of this report dealt extensively with how CTE is no longer an isolated track for a small group of students. Along with Advanced Placement courses and other high-level academic courses, CTE programs are among the opportunities that students access to complete their acquisition of the Framework skills and to acquire the skills they need to pursue their career/life aspirations.

This section also identifies those actions necessary if high schools and CTE centers are to be partners in providing students these opportunities.

#### **State Board Recommendations**

- ✓ **Strong regional boards should develop and manage career pathways for students.**

Each region should have a strong regional board - with representation from high schools, WIBs, the DET office, VSAC representatives, and other businesses and business organizations in the region - that will plan and coordinate the programs and services necessary to fulfill the CTE system's mission. The regional board should create the plan that coordinates career development in all of the region's schools and aligns curriculum and schedules among schools to support seamless career paths for

students. It should plan, recommend and oversee the operations of the regional technical center in the region. Where a technical center school district has been created, the governance board for this district should serve as this regional board and communicate closely with other partners.

- ✓ **CTE centers will partner with schools in their regions to insure that all students have appropriate career pathways accessible to them.**

The vision for CTE described how CTE centers will serve as the hub for career education in their regions:

- Center staff can work with and support middle and high schools in offering and coordinating appropriate career development activities
- Centers can lend expertise to high schools as they create career pathways for students
- Centers can help develop and/or offer satellite pre-tech and CTE programs in high schools that connect to and support career pathways.

- ✓ **Each region should have a Regional Pathways Coordinator.**

As federal or private resources for high school innovation are acquired, provision should be made for a Pathways Coordinator for each of the current CTE regions. The person in this position could work with all schools in the region to support and coordinate career development. She or he could also work with high schools and the CTE center to align curricula and develop career pathways. The pilots have demonstrated that the offerings of high schools and technical centers can be coordinated to provide successful pathways for students. However, this did not happen until there was someone to work with all schools in the region to develop and align curricula. Secondary students will only have appropriate pathways from which to choose when high schools and the technical center in a region plan and act collaboratively to develop pathways that utilize their strengths and resources. A person who works with all of these schools to facilitate that collaboration is essential. In the meantime, career guidance personnel at the technical centers can support guidance networks to coordinate career development and to promote access of students to regional programming.

#### ***Question #5***

***How to encourage development and implementation of innovative technical education programs, including a strategy for state annual appropriation of funds, including capital construction funds, for this purpose.***

#### **Background**

When the legislature adopted the new funding system for CTE based on the six-semester average enrollment, centers discovered that a funding system based on prior enrollments provided predictability but made it difficult to develop and implement new programs.

Since state and local funds were only supporting existing programs, the only way to develop and run a new program was to raise tuitions until enrollments in new programs would begin to impact the funding system. Consequently, the Department requested in the FY 2002 budget that funds formerly allocated to the tech ed pilots be allocated to funding innovative program development and start-up costs.

For FY 2002, a special appropriation allocated those funds (\$450,000) for that purpose. The result was encouraging. First-year funding was provided to four centers to begin program development in the health, manufacturing, and information technologies areas. In the FY 2003 budget, fiscal constraints prevented the Department from requesting these funds. However, the legislature added a special appropriation for \$200,000 for this purpose. Those funds were used to continue to support the four programs funded in FY 2002 and to begin development of a Manufacturing Technologies program and a Stone Arts program.

### **State Board Recommendations**

- ✓ **An annual appropriation of \$450,000 should be made available to continue Program Innovation Grants.**

These program development grants are critical and should be an on-going part of the funding system for CTE. In the FY 2004 budget, \$200,000 is requested for this grant line. In future years, \$450,000 should become a regular grant line in the Department's annual budget.

- ✓ **Equipment Funding should be a regular part of the annual budget.**  
Statute calls for an annual appropriation for equipment for CTE centers. Equipment purchases are the biggest single expense to keep programs current with the workplace. Equipment funds have been appropriated each year by the legislature through the capital budget at widely varying levels. The DOE should include a request for \$1 million each year in its proposed capital construction budget to provide predictable resources for equipment purchases.

### ***Question #6***

***The educational and fiscal impact of regional technical centers on those schools which are located at a distance from the center.***

### **Background**

Since the adoption thirty years ago of a regional delivery system for CTE, Vermont has focused on developing and supporting CTE programs in regional centers. This has allowed Vermont to focus its investment and develop a broader set of high-quality programs than other rural states that did not take this approach. The limitation of this approach, however, is that it inevitably makes CTE programming more accessible to students in home schools and less accessible the students in sending schools. The educational impact of this design has been that students in sending schools, especially

those at a distance from centers, had fewer educational opportunities. In some towns such as Waterbury or Manchester, students have had virtually no access to CTE because of the distance to technical centers. Because the funding system runs on the level of enrollments, these towns have not had to pay for inaccessible services but they have not benefited from the state's investment in CTE in their region.

The vision for the future of CTE calls for greater access for more students. As the state invests in this vision, it needs to do so in a way that addresses these past inequities. The vision suggests that greater access and more cost effectiveness can be achieved at this point in the system's development by decentralizing CTE programming.

### **State Board Recommendation**

- ✓ **Satellite and distance learning CTE programs should be offered in high schools, especially those that are distant from centers.**

This report has recommended that strong CTE regional boards and the CTE centers will support high schools in creating effective career pathways. From the time they enter high school, students should be supported by programming and services that help them set career/life goals and be provided applied learning opportunities that relate to those goals. Pathways should be available to them that integrate the instruction of the knowledge and skills in the Framework with the specific skills they will need to pursue satisfying careers.

The report has also suggested that, while most CTE programs will be offered through the regional CTE center, satellite programs should be developed and supported in high schools where there is sufficient student interest and facility capacity. This is especially important when high schools are distant from centers. These CTE programs can be the culminating parts of the career pathways that frame students' secondary education and be available to students throughout the region. These programs can be administered through the regional board and CTE center to support that regional access and to insure program quality.

Learning technologies that create virtual education settings and distance learning technologies should be utilized to support this decentralization and the consequent improved access to CTE programs in sending schools. CTE centers and schools have only begun to experiment with how to utilize information technologies to provide programming. To support expansion and to ensure quality, the state should work with centers and schools to develop appropriate criteria and processes for program development and dissemination, to create appropriate funding mechanisms, and to provide professional development.

### **Recommended Plan of Action**

When the 1998 Legislature funded the pilots to experiment with ways to strengthen CTE, it identified the objectives for an effective CTE system:



- Engage all of the schools in the region in appropriate decision making; promote maximum access by Vermont's secondary school population
- Establish programs with high academic and technical performance standards for all technical education students
- ensure a financing system that guarantees an equal opportunity for successful education and career development for all Vermonters and
- promote the development of programs that foster economic development throughout the state.

A review of the recommendations to the legislature suggests that the State Board of Education and the legislature can act together to achieve these objectives and create an effective CTE system for Vermont. Here is a summary of the objectives and respective actions by the State Board and the legislature.

Action by State Board of Education/Schools	Recommendations for the Legislative Action
<ul style="list-style-type: none"> <li>• <b>Engage all schools / promote access to secondary students</b></li> </ul>	
<ul style="list-style-type: none"> <li>• Regional boards and CTE centers will support career development and career pathways in middle and high schools in their regions.</li> <li>• Regional boards and CTE centers will develop satellite CTE programs in high schools and make distance learning programs available to high school students in their regions.</li> </ul>	<ul style="list-style-type: none"> <li>• Regional Boards should be charged to coordinate CTE programming in the region, to develop a plan for the operations of CTE centers, and to approve CTE center budgets before they go to the voters</li> <li>• Technical center school districts should be directed to have voters approve budgets whenever it is reasonably possible.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>CTE programs with high academic and industry standards</b></li> </ul>	
<ul style="list-style-type: none"> <li>• CTE programs will address broad career areas and encompass high academic and industry skills.</li> <li>• CTE programs will serve as the pathway that incorporates the 11<sup>th</sup> and 12<sup>th</sup> grades.</li> </ul>	<ul style="list-style-type: none"> <li>• Statutes should be enacted and amended to allow CTE centers to offer diplomas.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Financing System that guarantees equal opportunity</b></li> </ul>	
<ul style="list-style-type: none"> <li>• The DOE will oversee the planning and implementation of CTE programs and facilities in CTE centers and in high schools to ensure that CTE opportunities of high quality exist for all students.</li> </ul>	<ul style="list-style-type: none"> <li>• Tuition reduction should be set at a level to make CTE affordable to school districts.</li> <li>• The state should cover 90 percent of CTE construction costs.</li> <li>• Statute should provide for the establishment of escrow accounts to support the sound management of equipment and facility up-grades.</li> </ul> <p>Appropriations for equipment and program</p>

	development should be part of the annual appropriations in support of the CTE system.
<ul style="list-style-type: none"> <li>• <b>Workforce and Economic Development</b></li> </ul>	
<ul style="list-style-type: none"> <li>• Adult technical education coordinators will facilitate the offering of programming that provides Vermonters with the skills they need for employment and businesses with the training they need to stay current and competitive in the marketplace.</li> <li>• All secondary programs will be connected to postsecondary programming.</li> <li>• CTE centers will work with the VSC and other postsecondary providers to offer apprenticeship programs, postsecondary degree programs, and advanced customized training for businesses.</li> </ul>	<ul style="list-style-type: none"> <li>• Funding should be provided in the future to support and expand adult technical education services to function as the basis for regional workforce and economic development.</li> <li>• The VSC should be recognized and supported in its efforts to offer postsecondary programming and customized training through the CTE system.</li> </ul>